

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK**

NATURAL RESOURCES DEFENSE
COUNCIL, INC., et al.,

Plaintiffs,

v.

U.S. DEPARTMENT OF THE INTERIOR,
et al.,

Defendants.

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) 18-CV-4596 (VEC)
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NATIONAL AUDUBON SOCIETY., et al.,

Plaintiffs,

v.

U.S. DEPARTMENT OF THE INTERIOR,
et al.,

Defendants.

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) 18-CV-4601 (VEC)
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STATE OF NEW YORK, et al.,

Plaintiffs,

v.

U.S. DEPARTMENT OF THE INTERIOR,
et al.,

Defendants.

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) 18-CV-8084 (VEC)
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DECLARATION OF ALBERT M. MANVILLE, II, Ph.D., C.W.B.

1. I am submitting this Declaration in support of Plaintiffs' motions for summary judgment in these consolidated cases. As explained in this Declaration, based on my extensive background and experience in implementing the Migratory Bird Treaty Act (MBTA) and in related issues, it is my expert professional opinion that the position adopted in Opinion M-37050 in December 2017, is devastating for the protection and conservation of migratory birds, and hence seriously harms the interests of the Plaintiff conservation organizations and their members as well as the interests of the Plaintiff States in furthering their trust responsibilities to protect migratory birds.

Expertise and experience regarding the MBTA and the conservation of migratory birds outside the Federal government.

2. **Experiences Growing Up:** I have been interested in birds and bird conservation from a very young age. As a child, I frequently accompanied my father in the field, learning to identify birds by sight and song, and interacted with many of his professional colleagues, some of whom were renowned bird experts. At the time, my father was Director of the Bird and Mammal Laboratories, Smithsonian Institute, then a part of the U.S. Fish and Wildlife Service (hereafter, USFWS, FWS, or the Service). On a personal basis, I also began to understand and appreciate important bird habitats and species that utilize them (e.g., Dippers, Bald and Golden Eagles in Montana, and Great-horned Owls in Virginia) when my family spent 2 summers each in Glacier National Park, MT, and in Shenandoah National Park, VA. I worked in two positions as a seasonal interpretive Park Ranger

Naturalist for the National Park Service, including in Rock Creek Park, Washington DC, giving interpretive talks to the public about birds, mammals, reptiles and amphibians, and their habitats in Rock Creek Park.

3. **Academic Training:** A copy of my curriculum vitae is attached as Exhibit A. As indicated, I earned a B.S. in zoology/ecology from Allegheny College, Meadville, PA, with extensive training in field identification and field study methods, including for avifauna. My M.S. in Natural Resources and Wildlife Management from the University of Wisconsin-Stevens Point included avian field identification, avian field wildlife management techniques, in-person waterfowl hunter surveys and hunter-kill bag limit point counts, and legal issues surrounding the MBTA, among other issues. My Ph.D. in Wildlife Ecology and Management from Michigan State University (MSU) included field ornithology, a seminar presentation I gave on the MBTA comparing/contrasting it to the Endangered Species Act, a time activity budget study of Red-winged Blackbirds during their breeding season, and an independent study of bird use in a new primarily-treated wastewater wetlands/pond habitat created by MSU — my job was to determine what species and at what frequencies songbirds, waterbirds, raptors, and waterfowl used this somewhat unique environment.
4. **Defenders of Wildlife:** My roles for nearly 12 years as a Wildlife Consultant, Wildlife Biologist, Senior Staff Wildlife Biologist, and finally Director/VP of the Science Policy Division of Defenders of Wildlife (DOW) included considerable efforts studying, conserving and attempting to save migratory birds, involving work in many capacities. These ranged from founding and chairing the Nongame Coalition (1986-1988), consisting of 12 diverse organizations, seeking support to implement and fund the Fish and

Wildlife Conservation Act, to helping persuade Interior Appropriations subcommittees to successfully fund \$1.75 M for nongame migratory bird research for 2 years.

5. Based on 6 summers of published field research I conducted on the impacts of marine plastic debris on seabirds, Steller's sea lions, and harbor seals in much of the Aleutian Island chain (1988-1993)¹ — working off the USFWS's research vessel *M/V Tiglax* — I was invited to serve as a member of the U.S. Scientific Delegation on High-Seas Driftnetting representing the environmental community, reviewing the science of high-seas driftnetting, and negotiating with the Japanese, Taiwanese, South Koreans, and Canadians on scientific high-seas driftnetting issues, including impacts to migratory seabirds. The report we produced was submitted to the United Nations (UN), the Department of State, and to the President.
6. During this same period, I re-instituted and chaired the Entanglement Network Coalition (1986-1994) representing more than 50 regional and national organizations dealing with marine entanglement, incidental take, and plastic ingestion by fish and wildlife — including seabirds, waterbirds, and waterfowl. With Network support, I co-led the 1991 effort in the United Nations which unanimously banned large-scale high-seas driftnets worldwide. With the UN report, I helped lead the effort in Congress to pass implementing domestic driftnets legislation (1992), and led the lobbying effort convincing Congress to

¹ E.g., Manville, A.M. II. 1988. New technologies dealing with marine plastic pollution and efforts at mitigation. Trans. 53rd N. Am. Wildl. & Nat. Resour. Conf.: 191-203.

_____. 1988. Tracking plastic in the Pacific. Defenders 63(6): 10-15.

_____. 1990. A 1988 survey of plastics on western Aleutian Island beaches and related wildlife entanglement. Pp. 349-363, In R.S. Shomura and M.L. Godfrey (eds.), Proc. 2nd Internatl. Conf. Marine Debris, 2-7 April 1989, Honolulu. NOAA Tech. Memo. NMFS, NOAA-TM-NMFS-SWFSC-154.

_____. 1991. Aleutian Island plastics, pelagic drift and trawl new problems, and their solutions. Trans. 56th N. Am. Wildl. & Nat. Resour. Conf.: 205-214.

_____. 1992. Maintaining marine biodiversity: the missing link in global ecosystem management. Trans. 57th N. Am. Wildl. & Nat. Resour. Conf.: 398-407.

collectively appropriate \$16.2 M in research funding for 6 years, including for further research into seabird entanglement.

7. I conducted over 4 months of cumulative, on-scene habitat and wildlife assessments in Prince William Sound, Alaska, following the 1989 *Exxon Valdez* oil spill from 1989-1993, and 1996. This included visiting the Valdez seabird recovery center, being shown some of the 34,000 seabirds being kept as evidence of “takings” (i.e., unpermitted killing, crippling and injury) in the Valdez morgue, touring Night Island shortly after the spill — bird calls and bird presence totally absent — taking a floatplane trip to assess oiled beaches in Southern Prince William Sound 1 year after the spill, and visiting what later was to become the Alaska SeaLife Center, Seward. My investigations involved assessing recovery of Black Oystercatchers, Bald Eagles, Harlequin Ducks, murrelets, shearwaters, kittiwakes, gulls, cormorants, and others. I published a number of scientific and popular papers on the spill and its impacts on avifauna and other wildlife.² These experiences opened my eyes to the massive amount of “takings” of many bird species that occur from oil spills and the subsequent significant criminal fines levied on Exxon (including under the MBTA) for this accident which never should have happened. Under the current So-

² E.g., Manville, A.M. II. 1989. Oiled aftermath. *Defenders* 64(4): 13-17.
 _____. 1989. The aftermath of North America’s largest oil spill; how not to handle the cleanup effort. *Advocate* 7(4):12-13, 24-26.
 _____. 1990. The *Exxon Valdez* oil spill: problems with wildlife rehabilitation. *Advocate* 8(1): 6-7, 11.
 _____. 1991. Cleaning up an oil spill: some biological tools in the chest of cleanup options. *J. Clean Technology & Envir. Sci.* 1(2): 123-130.
 _____. 1992. Cleaning up an oil spill: biological tools in the chest of clean-up options. Pp. 85-93. *In* V. Molak, W. Davis-Hoover, S. Khan, and M. Mehlman (eds.). *The Alaska Story: a Comprehensive Approach to Problems with Oil Spills in Marine Environments*. Princeton Sci. Publishing Co., Inc., Princeton, NJ.

licitor's Opinion at issue in this litigation, however, these "takings" are currently considered merely as the routine cost of doing business and are beyond the ability of the USFWS to enforce.

- 8. Publications:** I have published to date, either as sole, senior, or junior author more than 175 popular, technical, and scientific articles, papers, and chapters, many in refereed, peer-reviewed journals, and many about migratory bird conservation, incidental take, and efforts to mitigate bird loss³.

My roles and responsibilities with the Division of Migratory Bird Management (DMBM), U.S. Fish and Wildlife Service, overseeing the conservation of migratory birds, 1997-2014.

9. I was hired in 1997 as the Chief of the Branch of Communication and Coordination, DMBM, USFWS Headquarters Office. My primary supervisory duties included coordinating bird issues under Partners in Flight, addressing Double-crested Cormorant depredation permitting, and representing my Division in a number of international bird conservation initiatives. The latter, for example, included successfully negotiating the unanimous approval of the International Plan of Action for Seabirds at the UN's FAO Consultation in Rome (1998-1999), the Plan designed to reduce the bycatch of 61 species of seabirds by at least 80% annually in the world's longline fisheries fleets — actions clearly designated as "takings." I was invited to serve on the 5-member U.S. FAO Steering Committee, head the U.S. Seabird Delegation at the U.S. Delegation to the FAO, and

³ *E.g.*, my most recent publication regarding bird "take" includes: Manville, A.M. II. 2016. Chapter 20: Impacts to birds and bats due to collisions and electrocutions from some tall structures in the United States: Wires, towers, turbines, and solar arrays - State of the art in addressing the problems. *In*: F.M. Angelici (ed.), *Problematic Wildlife — a Cross-Disciplinary Approach*. Pp. 415-442. Springer International Publishing, Switzerland. DOI 10.1007/978-3-319-22246-2.

serve as Co-chair of the Interagency Seabird Working Group developing the U.S.'s National Plan of Action for Seabirds implemented in 2001.

10. On another migratory bird conservation issue, I successfully negotiated an agreement at the Japan-United States Migratory Bird Treaty Discussions in Tokyo — a meeting which had not previously taken place for 20 years. I was invited to serve as the head of our 6-member U.S. Delegation. The results of the meetings included agreement on U.S. membership in the Anatidae Network and the Shorebird Reserve Network Working Groups, joint collaboration on the Shorebird Sister Schools Program, joint Dunlin research, collaborative work on endangered Short-tailed Albatross conservation, and an agreement for the next meeting in 2000. Shared conservation of our joint trust bird resources was clearly the focus of these meetings, including avoiding or minimizing incidental “take.” It was our collective understanding that avoiding or minimizing such take was necessary to meet the U.S.-Japan treaty goals, one of which is to prevent damage to birds and their environment “including damage resulting from pollution of the seas.”

11. **Initiatives to Avoid and Mitigate Impacts of Industrial Activities on Migratory Birds.** While working with DMBM, I spearheaded a number of groundbreaking initiatives to convince major industries to take practicable steps to ameliorate their adverse impacts on migratory birds. As discussed further below, as to each of these efforts, the potential for enforcement of the MBTA against foreseeable incidental take was essential to our efforts to persuade industry to take such steps.

12. Shortly after beginning my tenure with DMBM, I was approached by conservation groups regarding a large, single-night mass bird mortality event (“takings”) of some 10,000 mostly Lapland Longspurs at multiple communication towers and a power station

in early 1998 in Kansas. The NGOs queried me about what USFWS was going to do to address the large kill. As part of an initiative to begin addressing communication tower collision “take,” I co-chaired and facilitated the first-of-its-kind public meeting in August 1999 on "Avian Mortality at Communications Towers" at Cornell University. The meeting included ornithologists, other scientists, industry and Federal agency representatives (including the Federal Communications Commission [FCC] and the Federal Aviation Administration [FAA]), and NGO representatives. We discussed further research needs, gaps, and next steps to take at communications towers; 17 speakers and 23 panelists participated in this workshop. Around this same period, I succeeded in garnering key ornithologists, Federal agency, industry, academic, and NGO representatives to come to the table to begin addressing the issue of avian mortality at communication towers, with meetings in Washington, DC. As a part of this initiative, I was invited to chair the multi-stakeholder group called the Communication Tower Working Group (CTWG), focusing on research needs to avoid bird collisions. I convened 2 meetings each in 1999 and 2000 to begin the discussions. I helped convince members of CTWG to approve the framework for a nationwide research monitoring protocol to assess collision mortality, and convinced several communication industry representatives to help fund single-project tower studies. As a result of these efforts, much more concerted nationwide efforts were begun to address the issue of collision “take” at communication towers. Meanwhile, I co-authored the 2000 voluntary USFWS communication tower guidelines, and updated that

document in 2013⁴, reflecting new lighting standards being developed by the FAA and the FCC.

13. I likewise played an important role in the development of the FWS's voluntary guidelines for reducing the impact of industrial wind turbines on migratory birds. While these guidelines were not as effective as I would have preferred, they did expressly recognize that the MBTA encompasses foreseeable incidental take such as that caused by industrial wind turbines in areas of critical importance to migratory birds, and they did play a role in motivating many companies to prepare avian protection plans that at least committed the companies to monitor for bird deaths and take various steps to mitigate project impacts.
14. I also served as the Service's primary representative on the Avian Power Line Interaction Committee (APLIC), and I co-authored the APLIC suggested practices for reducing bird electrocutions (2006) and collisions (2012) at distribution and transmission wires and their infrastructures.
15. Due to my work at DMBM forming and chairing committees, bringing in experts, publishing many papers on the latest research and findings regarding bird "take" at many different types of human structures — including research with which I was involved representing USFWS — speaking at conferences and workshops, publishing estimated mortality levels for different bird-structural impacts, and developing scientific research proto-

⁴ Manville, A.M., II. 2013. U.S. Fish and Wildlife Service (USFWS) revised guidelines for communication tower design, siting, construction, operation, retrofitting, and decommissioning -- Suggestions based on previous USFWS recommendations to FCC regarding WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on Migratory Birds," Docket No. 08-61, FCC's Antenna Structure Registration Program, and Service 2012 Wind Energy Guidelines. Division of Migratory Bird Management, Arlington, VA. 5 pp.

cols, I was recognized as the Service's nationwide avian-structural impact lead. This included impacts of "take" from (among other activities) communication towers (collisions and radiation), oil spills and oil pits, land-based and offshore commercial wind turbines, distribution and transmission wires and infrastructure, building windows/glass/lighting, bridges, pesticides and other contaminants, and commercial fishing gear. In 2016 (after I retired from the Service), I received the Morley Nelson Conservation Service Award for my work with APLIC during my 17 years as a wildlife biologist with USFWS.

How I and USFWS relied on the MBTA to develop best management practices and best available technologies to "avoid or minimize take" of migratory birds by a variety of industry structures and practices.

16. The FWS's longstanding position that the MBTA's prohibition on authorized take applies to foreseeable incidental take by major industrial activities was essential to my and the Service's efforts to convince various industries to adopt reasonable measures for avoiding or minimizing such take. Relying heavily on the MBTA's take prohibition, we in DMBM and Ecological Services developed best management practices (BMPs) and deployed best available technologies (BATs) to be used as "conservation measures" for avoiding or minimizing take. While the guidance was voluntary, companies understood that the failure to adopt such reasonable measures agreed to by other industry actors—followed by predictable bird mortality—placed them at risk of being subject to prosecution for MBTA violations. For example, this included a New England communication tower case where lighting should have been changed out to flashing/blinking red warning lights, but the proponent refused to modify the steady red lighting, which attracted and killed many migrating birds. This resulted in a misdemeanor citation which was pushed

by one of the Service's Special Agents before I retired in 2014. This is the kind of sensible approach to enforcement—focusing on companies that refused to adopt practices followed by other industry actors—that we employed to encourage industries to take modest but effective steps to avoid or minimize mortality and injury of migratory birds.

17. These BMPs and BATs were released as USFWS guidance, including guidance for communication towers, land-based wind turbines, collision and electrocution avoidance at power distribution and transmission lines, building glass and lighting, bridges and bridge lighting, oil pit protection, commercial fishing gear, and pesticides, among others. To educate the public, project proponents of the affected industries, utilities, other Federal and State agencies, Canadian and Mexican government authorities, consultants, leading academicians, and other stakeholders, I was invited to give many presentations, papers, PowerPointPoints, talks, and public and agency briefings about these recommendations, and what USFWS expected project proponents and agencies to do to avoid or minimize take, and thereby avoid potential enforcement action under the MBTA. These presentations ranged from venues in Alaska to Florida, and from California to New England to Nova Scotia. We at DMBM attempted to be very thorough, focusing on all aspects of project development from site selection and risk assessment, to pre-construction, construction, post-construction/operation, and project decommissioning.
18. The MBTA's prohibition on unauthorized take provided the underlying foundation for the vast majority of my work as the FWS lead in our efforts to significantly reduce and, ideally, to avoid or minimize take of protected avifauna. As I publicly stated while working with FWS, the MBTA provided the "marching orders" for the myriad efforts I and other Service staff undertook to avoid or minimize take of protected migratory birds.

Examples of MBTA enforcement to get industry engaged and address the “bad apples” which ignored USFWS requests and were subsequently prosecuted and convicted.

19. In 1998, I began participating and representing DMBM at meetings of APLIC, and began a close collaboration with Service Special Agent Leo Suazo of the Office of Law Enforcement (OLE). I would set forth reasonable measures for avoiding or minimizing incidental take while Leo would maintain his role as the Service’s lead law enforcement agent involved in ongoing cases against the electric utility industry. During this period, I worked with both Leo and a prosecuting attorney at the Department of Justice who was building a case against the Moon Lake Electric Cooperative for their failure to implement recommendations that would have avoided raptor electrocutions. Leo had requested that Moon Lake implement several measures, but Moon Lake simply ignored him. In 1999, Moon Lake was criminally prosecuted and fined \$100,000 for electrocuting migratory birds. The prosecution included up to 4 years’ probation for company executives and required significant improvements and upgrades to the Moon Lake infrastructure, including spending more than \$1 million for power pole/line retrofits. This sent a powerful message to the entire electric utility industry as well as the utility members in APLIC. We had the industry’s undivided attention and used it to develop and implement efforts at avoiding and minimizing incidental take. Without the threat of enforcement against recalcitrant industry actors, this would not have been possible.

20. With the Service’s focus on education, exchange of information, and enforcement—in that order of priority—APLIC set the industry standard for a proactive approach to addressing stressors prior to wire and infrastructure placement and operation. These efforts included the development and release of APLIC’s 2005 *Avian Protection Plan (APP) Guidance*, a collaborative effort between APLIC and USFWS which I co-authored. The

APP Guidance lays out 12 principles for companies, cooperatives, public service and utility districts, and electric administrations to follow in developing and implementing a proactive plan to address potential impacts from wire collisions and electrocutions. By developing and implementing an APP, a utility is ideally focusing on the cause of a problem (e.g., wire collision and infrastructure electrocution) and taking steps to address it proactively, including through any new construction. Just before I retired, more than 100 APPs had already been developed or were under development by electric utilities and cooperatives.

21. To proactively deal with stressors as well as deal with existing threats, APLIC also periodically published best management practices and best operational technologies based primarily on peer-reviewed, published scientific studies to address electrocutions (most recently, *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006*) and collisions (most recently, *Reducing Avian Collisions with Power Lines: the State of the Art in 2012*). These documents and their recommendations were designed for use on existing power infrastructure (e.g., retrofits — focused on addressing threats) and for all new construction (i.e., anticipating and avoiding potential stressors, where possible). I co-authored both suggested practice documents and highlighted them in many meetings and conferences while stressing that compliance with them would be taken into account in the FWS's decisions on whether to pursue enforcement action for incidental take of migratory birds.
22. Notwithstanding the FWS's overall success in using the MBTA to instigate major positive changes in the electric utility industry, some significant problems with electrocutions

did continue to occur, resulting in the 2009 criminal prosecution of PacifiCorp for electrocuting migratory birds. The company was fined \$10.5 million in 2009, reaching a final settlement agreement in 2014 of \$400,000 in fines, \$200,000 in restitution to the State of Wyoming, and \$1.9 million to the National Fish and Wildlife Foundation. The message sent by this and other prosecutions: bad habits, poor corporate decisions, and illegal activities can have consequences and USFWS was serious about addressing “take” especially where verified, validated, and reasonable “conservation measures” were readily available and should have been used but were not. Had the current Solicitor’s Opinion then been in force, such prosecutions—and the vitally important message they sent—would have been impossible.

The abrupt change by the DOI Solicitor with Opinion M-37050, what it means for bird conservation, and why it is so harmful to our migratory bird trust resources.

23. Migratory birds are in very serious trouble in the U.S. and globally. These include the 1,027 species currently protected in the United States by the MBTA and its regulations, and the hundreds (and growing numbers) of Birds of Conservation Concern (BCCs) that foretell their ultimate fate as Federally listed under the Endangered Species Act, extirpated or even extinct, if their population declines are not reversed. These BCCs are not yet ready for listing under the ESA, but many are headed in that direction. Just referencing the precipitously declining bird population statistics — based on the annual Breeding Bird Surveys conducted nationwide since the 1960s — creates a frightening trend regarding what is happening to our public bird trust resources. Additionally, the current trends in bird population status paint a depressing image of what life could soon be like without all the services and benefits provided by migratory birds, from bird watching, pollination,

insect pest control, weed seed consumption, and more — worth over \$100 billion per year in the U.S alone. Whether the impacts affecting migratory birds are from climate change, habitat loss and degradation, contaminant and oil spills, pesticides, new and spreading diseases, toxic algal blooms, invasive species, structural collisions, electrocutions, negative impacts from radiation, or from other perturbations all leading to the current 6th global extinction epoch, birds are suffering the proverbial “death by 1,000 cuts.” Thus, migratory birds urgently need all the protections afforded them for over the past 100 years under the MBTA and, in particular, as I and others in the FWS recognized and worked so hard to address, they need the protections from incidental take associated with major industrial activities.

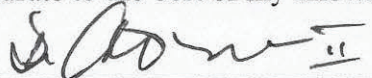
24. Blatantly eliminating the one tenet/provision that had been effectively used for many decades— i.e., the regulatory approach to enforcing “take” in its many forms under the MBTA and statutory regulations — will, in my expert opinion, be devastating for bird conservation and seems analogous to “biting off your nose to spite your face.” The current DOI Solicitor’s opinion M-37050 only supports and reinforces the “bad apples” in the many industries that negatively impact migratory bird survival, and does nothing to encourage industries which might have otherwise voluntarily implemented BMPs and BATs to use them, now that there is no fear of prosecution for “take” other than for poaching, hunting infractions, and the illegal trade in bird parts. Given the dire circumstances facing migratory birds, this is exactly the opposite of the approach that we should be taking to bird conservation.
25. As explained, I spent 17 years helping to convince various industry sector representatives — in the communication tower, wind turbine, power line, lighting, building glass,

bridge construction, pesticide, and commercial fishing gear industries, among others — that protecting birds by practical means using bona fide and scientifically tested and published conservation measures (i.e., BMPs and BATs) is one of the best approaches to ameliorating bird population declines. Avoiding, minimizing, or mitigating “take” within each of these industries (as well as others) was a key component of my efforts. Indispensable to those efforts was the FWS’s position that the MBTA’s take prohibition applied to foreseeable incidental take by major industries, and the risk of prosecution those industries faced if they ignored the FWS’s requests to take reasonable steps to avoid or minimize bird mortality and injury. Eliminating this enforcement option makes absolutely no sense from the standpoint of bird conservation or sensible regulation, especially because, as I know from my experiences with the FWS as well as my other extensive conservation work, the potential for enforcement has provided enormous leverage that was used to avoid millions of unnecessary bird deaths and injuries. That leverage has now been discarded with predictably terrible consequences for migratory birds and those who enjoy, study, and otherwise benefit from them.

26. The current reversal of longstanding policy by the Trump administration, which was clearly designed to placate certain extractive industries with no regard whatsoever for the FWS’s past successful efforts to reach accommodations with industries regarding reasonable measures to avoid or minimize bird deaths and injuries, is a disaster for already impacted and declining migratory bird populations. That this disastrous change in decades-long policy was made without any public review in accordance with the National Environmental Policy Act (NEPA)—which would at least have allowed for an assessment of

environmental impacts and alternatives to the draconian position adopted in the M-Opinion—further exacerbates the grave harm to those who have fought to protect migratory birds and to the many Americans, including the members of the Plaintiff organizations, who regularly engage in bird watching and otherwise derive tremendous pleasure from migratory birds.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge.

A handwritten signature in black ink, appearing to read "A. Manville, II", is written over a horizontal line.

Albert M. Manville, II, Ph.D.

Dated: January 2, 2020

EXHIBIT A

ABBREVIATED CURRICULUM VITAE

ALBERT M. MANVILLE, II, Ph.D., C.W.B.

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Last updated 1/1/2020

SUMMARY OF PROFESSIONAL EXPERIENCE

PUBLICATIONS, MEDIA, OUTREACH AND PUBLIC SPEAKING SUMMARY To date

- Made more than 70 television and 90 radio appearances on environmental issues, quoted hundreds of times in print media. Most recent recorded live radio interview: Program #561, Ray Brown Show, "Talkin' Birds" 2016 — available at talkinbirds.com from their archives.
- Invited to testify more than 40 times before Congress and other governmental bodies.
- Published more than 175 professional and popular papers, chapters, and book reviews, many refereed and peer reviewed, most recently by Springer International (Chapter 20, in *Problematic Wildlife — a Cross-disciplinary Approach*, 2016 Switzerland). 2019 manuscript in final stages of editing, *Effects of Ambient Non-Ionizing Electromagnetic Fields on Flora and Fauna*, by B. B. Levitt, H. Lai, Ph.D., and A. Manville, to be published in an open-access scientific journal.
- Invited to guest speak, including keynotes, at more than 160 public presentations.
- Served on the Editorial Advisory Board of the *Nature Conservancy Magazine*.
- Invited to be wildlife consultant for 1991 Walt Disney/Touchstone Pictures production of the movie *White Fang*, based on Jack London's book.

EDUCATION AND CERTIFICATIONS

- Ph.D., Wildlife Ecology & Management, Michigan State University, 3.60/4.0 grade point average.
- M.S., Natural Resources & Wildlife Manage., Univ. Wisconsin-Stevens Point, 3.87/4.0 GPA.
- Certified as Mandarin Chinese Linguist, Foreign Service Institute, VA; Military Language School, TX; and served at National Security Agency, MD — all part of my U.S. Navy military service.
- Certificate of Fluency, Mandarin Chinese, Foreign Service Inst., Dept. of State, Arlington, VA — 1,194 hours training.
- B.S., Zoology/Ecology, Allegheny College, Meadville, PA, graduated with honors (Alden Scholar).
- Certificate of Completion, Managing Performance and Conduct, Natl. Conser. Train. Ctr., WV.
- Certificate of Achievement, Involving and Motivating People to Achieve Conservation Teamwork/IMPACT training, National Conservation Training Center.
- Lifespring Basic, Advanced, and Leadership Program 120 graduate, Chevy Chase, MD.
- Certificate of Achievement, Program in Human Interaction, NTL Institute, ME.
- Certified Wildlife Biologist (C.W.B.), The Wildlife Society.
- Certified Private Pilot, Federal Aviation Administration, VFR high performance aircraft rated.
- Certified Scuba diver, YMCA and NAUI, and certified diving instructor, U.S. Navy.

POSITIONS

- *Principal*, Wildlife and Habitat Conservation Solutions LLC, consulting (2014 to present).

- *Branch Chief* (1997-1999) and *Senior Wildlife Biologist* (2000 to 2014 [retired]), Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Headquarters Office, Arlington, VA, acting as the Service's national lead on avian-structural and fishing gear impacts.

Duties: Acted as Service's lead on Avian Power Line Interaction Committee, chaired the Communication Tower Working Group, chaired the Waterbird Bycatch Working Group, co-chaired the Interagency Seabird Working Group, acted as Technical Scientific Adviser to the Bird-Safe Glass Initiative, and to the Audubon National Wildlife Refuge Technical Advisory Committee, coordinated bird-building glass issues, participated as the Division's lead representative to Trilateral Bird Table on avian-wind turbine and electric wire issues, and conducted training on Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

Additionally, headed the Seabird Delegation to the FAO, chaired the FWS's Interim Wind Turbines Guidelines Crafting Committee, served as Head of Delegation to Japan-U.S. Migratory Bird Discussions, and served as Technical Scientific Advisor to Wind Energy Federal Advisory Wildlife Federal Taskforce.

- *Adjunct Professor, Senior Lecturer and Instructor*, Advanced Academic Programs, Krieger School of Arts and Sciences, Johns Hopkins University, DC Campus (2000-present). Teach M.S. students Principles and Methods of Ecology, Conservation Biology, Marine Conservation Biology, Wildlife Management and Terrestrial Conservation Biology, and Natural Resource Sustainability classes and field courses; serve as mentor to students for various M.S. capstone/independent research projects; and serve as student professional reference.
- *Affiliate Professor of Biology*, Department of Biology, George Mason Univ., Fairfax, VA (1997). Developed a course on environmental advocacy/Biology 741 for graduate students.
- *Steering Committee Member*, Endangered Species Coalition (1996-1997), Washington, DC. Served as scientific advisor and lobbyist for key mammalian and migratory bird ESA issues before Congress, working closely with NGOs on endangered species issues.
- *Wildlife Consultant*, Falls Church, VA (1996-1997). Worked with and provided scientific expertise to the Alaska Wildlife Alliance, the Environmental Air Force, Environmental Solutions International, the Greater Yellowstone Coalition, the Green Mountain Forest Watch, the Humane Society of the United States, the Inland Empire Public Lands Council, the National Audubon Society, the Natural Resources Defense Council, the National Parks and Conservation Association, The Wilderness Society, and the Natural Resources Council of Maine, among others.
- *Class Instructor*, U.S. Dept. Agriculture Graduate School, Evening Programs, Washington, DC (1983-2001). Taught Wildlife Ecology/ENATH 265, Advanced Wildlife Ecology/E 266, and Wildlife Policy and Environmental Ethics/E 267.
- *Executive Director*, Adirondack Mountain Club, Lake George, NY (1994-1996), a regional conservation organization with 24,000+ members. Directed 32 full-time employees, some 50 seasonal staff; maintained 3 facilities; worked closely with 17 standing committees, 27 chapters in 4 states, 52-member Board of Governors, and 11-member Executive Committee; managed \$2.25 million annual budget; significantly increased funding and developed a Corporate Council, marketed, conducted outreach efforts, and frequently spoke to the public.
- *Consultant* (1983), *Staff & Senior Staff Wildlife Biologist* (1984-1992), and *Director/Vice President of Science Policy Division* (1992-1994), Defenders of Wildlife, Washington, DC. Helped develop and drafted, supported, and testified for 7 federal authorizing and annual appropriations bills and ratification of an international protocol. Created and chaired coalitions (e.g., the 50-

member Entanglement Network Coalition and 12-member Nongame Coalition) and formed committees (e.g., co-founded Ad Hoc Advisory Committee on Plastics/Keystone Dialogue on Navy Plastics, and co-led a successful 1991 U.N. initiative to ban high-seas driftnets worldwide). Acted as media contact on key environmental issues (e.g., interviewed on Ted Koppel's *Nightline* re: AK aerial wolf control), led press conferences (e.g., Navy plastics, *Exxon Valdez* oil spill, and U.N. high-seas driftnet initiative), led invited Congressional briefings (e.g., *Exxon Valdez* spill), published articles and chapters, presented scientific papers on personal research (e.g., Aleutian Islands marine debris impacts to seabirds and marine mammals, *Exxon Valdez* cleanup technologies and species recovery, human-brown bear interactions in Alaska, and impacts of aerial wolf control), testified before Congress and AK Board of Game, and served as guest speaker at numerous venues. Invited to be U.S. environmental representative to 2 workshops, 1 international scientific delegation, and 2 National Academy of Science's fora. Served as the environmental representative on the U.S. Scientific Delegation on High-Seas Driftnetting reviewing the science documenting impacts from this fishery. Invited by Walt Disney Productions/Touchstone Pictures to act as wildlife consultant for filming of Jack London's *White Fang*, with movie credits to Defenders of Wildlife.

- *Big Game Records Analyst* and *Official Measurer Trainer*, Boone and Crockett Club, Alexandria, VA (1981-1983). Maintained, updated, and reviewed files of records of North American big game, taught official measurer workshops to prospective measurers, and maintained status as official measurer for the Club.

SIGNIFICANT AWARDS AND HONORS

- Awarded Excellence in Teaching Award, Environmental Sciences and Policy, Krieger School of Arts & Sciences, Advanced Academic Programs, Johns Hopkins Univ. (2016-2017 academic yr.).
- Awarded Morley Nelson Conservation Service Award (2016) by the Avian Power Line Interaction Committee (APLIC) for my work as a Federal wildlife biologist collaborating with the electric utility industry for 17 years.
- Awarded 23-year length-of-Federal-service certificate upon my retirement (2014).
- Awarded Special Service plaque for Steering Committee Member and Conference Organizer, "*Toward Wildlife Friendly Wind Power*," Toledo, OH (2006).
- Conferred Special Service/STAR Award for coordinating MI State Police communication tower study, garnering FAA lighting change outs, consensus with the electric utility industry on development of avian protection plans, and engaging wind industry about bird and bat impacts through the National Wind Coordinating Collaborative (2005 award).
- Awarded Conservation Service Award from Interior Secretary Babbitt, presented by FWS Director Jamie Clark, for cooperative work on Avian Power Line Interaction Committee for conservation efforts with electric utility industry (1999).
- Conferred Special Service/STAR Award for "*dedication to outstanding performance in the field of conservation... especially where he performed the delicate/sensitive job of negotiating a multilateral agreement through the United Nations FAO to reduce the global take of seabirds in commercial fisheries*" (1999).
- Conferred On-the-Spot Award from Chief, Office of Human Resources for personal leadership in developing and sponsoring a panel discussion with key leaders from Federal, state and private natural resources organizations on "*Increasing Diversity through Effective Outreach and Recruitment*" (1999).
- Nominated for membership in the Cosmos Club, Washington, DC (1996).
- Selected to appear in 1995-1996 edition of *Who's Who Among Outstanding Americans*.

- Selected to appear in 1995-1996 edition of *Strathmore's Who's Who Registry of Business Leaders*.
- Selected to appear in 1993-1994 edition of *Who's Who Registry of Global Business Leaders*.
- Invited to join StarKist's *StarKids Advisory Panel/StarKids for the Environment* (1991-1994).
- Co-led an environmental coalition of 145 groups at the United Nations banning large-scale high-seas driftnets, worldwide — passed unanimously by the U.N. (1991). Helped lead the Congressional effort to pass implementing legislation (1992).
- Invited to join Washington Biologists' Field Club (1991), invited to serve on the Board of Managers (1992-1994), and invited to chair Centennial Committee (1999-2003).
- Elected President, The Wildlife and Forestry Professional Information Exchange (1988-1992).
- Nominated to Allegheny College Athletic Hall of Fame (1988).
- Selected for membership in Alpha Zeta Honorary Fraternity (1977).
- Honored in *Outstanding College Athletes of America* for my accomplishments as a sprinter in track and as captain of the Allegheny College Track Team, including winning the President's Athletic Conference 440-yard dash championship (PR) and the PAC one mile relay.

BOARD MEMBERSHIPS

- Invitee to Board of Directors, Natural Resources Council of Maine (2013).
- Member, Steering Committee, Endangered Species Coalition (1996-1997).
- Invitee to Board of Directors, Alaska Wildlife Alliance (1997).
- Member, Board of Governors, Adirondack Mountain Club (1994-1996).
- Member, Board of Managers, Washington Biologists' Field Club (1992-1994).
- Member, Board of Directors, Wildlife and Forestry Professional Information Exchange (1982-1992), Board Chair (1988-1992).
- Member, Board of Directors, Metropolitan Washington Environmental Professionals (1986-1988).
- Member, Editorial Advisory Board, the *Nature Conservancy Magazine* (1990-1994).

TEACHING AND RESEARCH EXPERIENCE

- 30+ years of teaching experience at the university undergraduate and graduate levels including Johns Hopkins University, USDA Graduate School, and Michigan State Univ.; short courses/training for the Boy Scouts, Explorer Scouts, Boone and Crockett Club, National Park Service, National Zoological Park FONZ, WI and MI Depts. Natural Resources, National Arboretum, U.S. Fish and Wildlife Service, Dept. of Homeland Security, U.S. Coast Guard, Federal Communications Commission, Congressional and Government Accountability Office staff, NGOs, industry, and others.
- 30+ years research experience including work on black, grizzly, and brown bears (immobilizing and handling > 100 black bears, many radio-tagged, and several grizzlies), 3 year radio telemetry study on black bears, 5 years of parasite and disease assessment, and 17+ years of behavioral research on black, AK brown and MT grizzly bears. 6 summers' research on marine mammal and seabird bycatch/plastic debris impacts and population assessments in Aleutian Islands and North Pacific Ocean — including assessments of Steller's sea lions, harbor seals, beaked and great whales, and seabird entanglement and seabird population status (1988-1993). Performed avian time activity budget study on breeding Red-winged Blackbirds (i.e., timed use of resources and habitats), avian wetland use study, and other bird behavioral research (1976-1981). Alaska

wolf/prey, habitat, human impact, and radio telemetry field studies (1984-1995). Habitat analyses, assessments of bird and mammal recovery, and field testing of oil spill cleanup technologies following the *Exxon Valdez* oil spill (1989-1994).

EXPERT WITNESS

- As a consultant using protected migratory birds as the focus, provided testimony and affidavits for clients attempting to stop construction of unsafe cellular communication tower, radio tower and power substation projects in the West and East, and a Bald Eagle nest-development conflict in CO — several projects successfully challenged and overturned (2015 to date).
- Using the black bear as a key indicator species, served as expert witness for Natural Resources Defense Council commenting on a proposed land and resource management plan and draft EIS, and appeal to the Geo. Washington National Forest plan, won on appeal. Commented for The Wilderness Society on proposed management plans and later appeals for Hiawatha and Huron-Manistee NF's, both plans completely revamped in part as a result.
- Retained as expert witness in 5 environmental lawsuits including 2 National Wildlife Federation *et al.* suits regarding the *Exxon Valdez* oil spill, a Defenders of Wildlife *et al.* suit against the Department of Interior on administrative proceedings regarding aerial wolf control in Alaska, a Green Mountain Forest Watch and National Audubon Society suit against the Green Mountain National Forest on impacts from logging to black bears (won), and a National Parks and Conservation Association suit against the National Park Service on noise disruption and vessel impacts to humpback whales, Steller's sea lions, harbor seals, and seabirds in Glacier Bay National Park, AK (plan significantly altered).

ENDANGERED SPECIES INITIATIVES

- Worked to help list small whorled pogonia, Louisiana black bear, Steller's sea lion, and Marbled Murrelet as threatened under the Endangered Species Act.
- Reviewed management and recovery efforts for grizzly bears in the Northern Rockies.
- Commented on delisting of California gray whales and the Bald Eagles.
- Commented on status and/or provided recommendations on recovery plans for the Florida manatee, Florida panther, Louisiana black bear, southern sea otter, black-footed ferret, gray and red wolf, Red-cockaded Woodpecker, Kirtland's Warbler, desert tortoise, Kemp's ridley sea turtle, Steller's sea lion, bowhead whale, and Dusky Seaside Sparrow.
- Helped to continue protection for endangered alpine plant species in Adirondack High Peaks (NY) while E.D. of the Adirondack Mountain Club.
- Served on Steering Committee of Endangered Species Coalition, as member of Science Advisory Subcommittee of ESC, and as registered Congressional lobbyist for ESC.

PUBLICATION SUMMARY

- Published more than 175 popular and scientific papers, articles, chapters, and book reviews, many published in refereed, peer-reviewed scientific journals. Topics included the parasites and diseases of black bears, bear den site selection, human impact on bears, man and grizzly bear interactions, management of orphaned black bear cubs, wilderness treatment of bites from black bears, black bears and human ethics, and addressing nuisance bear problems. Published papers on the varied aspects of avian and bat mortality, addressing bird and bat collisions, electrocutions and seabird bycatch under the Migratory Bird Treaty Act, impacts of wind/communication towers/power lines on birds ranging from collisions, barotrauma, electrocutions, and effects of EMF

radiation, effects of seabird bycatch, cormorant depredation, and the “take” and permitting involved with the Bald and Golden Eagle Protection Act. Other subjects included Alaska aerial wolf control, strategic wolf management, national forest planning, nongame wildlife management, marine entanglement and incidental take, marine plastic debris, vessel-source plastic pollution, degradable plastics, balloon launches and their impacts on fish and wildlife, marine mammal management, and urban wildlife management. Publications on the impacts from oil spills included those on the *Exxon Valdez* oil spill, oil spill cleanup technologies, wildlife treatment and rehabilitation, cetacean and pinniped mortality, oil spill research and development, marine biodiversity and marine research. Conservation issues included those on Adirondack Mountain Club growth, fund-raising, team building, leadership, regional conservation initiatives, current problems in Congress, wildlife management, and strategic planning.

Examples of **select Single-authored titles** include:

Manville, A. M., II. 1969. Distribution of the black bear in the Appalachian Mountains. Senior Honor’s Thesis, Allegheny College, Meadville, PA. 55 pp. (material published some years later)

_____. 1976. Ecto- and endoparasites of the black bear in northern Wisconsin. M.Sc. Thesis, Univ. Wisconsin-Stevens Point. 54 pp (material later published; see beyond).

_____. 1977. Ecto- and endoparasites of the black bear in northern Wisconsin. P.23. *In* D. Christian (ed.), Proc. 57th Annual Meeting Am. Soc. Mammalogists, Mich. State Univ.:23.

_____. 1978a. Human impact on the black bear in Michigan’s Lower Peninsula. Pp.207-219. *In* R. Hugie (ed.), Proc. 4th E. Black Bear Workshop, Greenville, ME. 409 pp.

_____. 1978b. Ecto- and endoparasites of the black bear in northern Wisconsin. *J. Wildl. Dis.* 14(1):97-101.

_____. 1981. Black bears and humans in Michigan’s Lower Peninsula. Chap. 5, pp. 35-43. *In* W. H. Nesbitt and P. L. Wright (eds.). Records N. Am. Big Game, 8th edtn., Boone and Crockett Club. 409 pp. (volume also published in separate, special limited edition)

_____. 1982a. Human impact on the black bear in Michigan’s Lower Peninsula. Ph.D. Dissertation, Mich. State Univ., E. Lansing. 188 pp (material later published; see beyond).

_____. 1982b. National collection moves to Cody, Wyoming. *Petersen’s Hunting*.

_____. 1983. Human impact on the black bear in Michigan’s Lower Peninsula. *Int. Conf. Bear Res. and Manage.* 5:20-33.

_____. 1985a. Comments on the proposed land and resource management plan and draft environmental impact statement for the George Washington National Forest. *In* F. K. Benfield and J. R. Ward (eds.). Natural Resources Defense Council publ., 6 pp.

_____. 1985b. Comments on the proposed management plan for the Huron-Manistee National Forests, Michigan. *Wilderness Society publ.*, 15 pp.

- _____. 1985c. Comments on the proposed management plan for the Hiawatha National Forest, Michigan. Wilderness Society publ., 7 pp.
- _____. 1986a. Comments on the supplement to the draft environmental impact statement prepared in connection with the land and resource management plan for the George Washington National Forest. *In* F. K. Benfield, J. R. Ward, and A. E. Kinsinger (eds.). Natural Resources Defense Council, 4 pp.
- _____. 1986b. Appeal of record of decision, final environmental impact statement, and final land and resource management plan for the George Washington National Forest. *In* R. G. Dreher and F. K. Benfield (eds.). Statement of Reasons in Support of Appeal. Sierra Club Legal Defense Fund and Natural Resources Defense Council. Appendix B, 15 pp.
- _____. 1986c. Appeal of record of decision, final environmental impact statement, and land and resource management plan for the Huron-Manistee National Forests, Michigan. *In* L. S. Berker (ed. and attorney for appellants). Statement of Reasons in Support of Appeal. Wilderness Society publ., 18 pp.
- _____. 1986d. More facts on Alaska's wolf killings. *The Animals' Agenda* 6(4):33.
- _____. 1986e. Wolves gain from oil glut. *Defenders* 61(6):42.
- _____. 1987a. New technologies dealing with marine plastic pollution and efforts at mitigation. *Trans. 53rd N. Am. Wildl. & Nat. Resour. Conf.*: 191-203.
- _____. 1987b. Plastic and marine debris problems -- a global embarrassment, insidious killer, and ecosystem health problem. Briefing on Ocean and Coastal Issues in 100th Congress, Feb. 26, 1987. *Oceanic Society (Sect. C)*, 8 pp.
- _____. 1987c. Woodsmen, spare that forest! *Defenders* 62(1):6, 42.
- _____. 1987d. Alaskan wolves. *The Animals' Agenda* 7(2):3, 36.
- _____. 1987e. The role of private conservation organizations in improving habitat for urban wildlife. *Proc. Natl. Symposium Urban Wildlife, Natl. Inst. Urban Wildl.* 10 pp.
- _____. 1987f. Testimony of the Entanglement Network Coalition before the House Committee on Merchant Marine and Fisheries, Subcommittee on Fisheries and Wildlife Conservation and the Environment, and Subcommittee on Coast Guard and Navigation, joint hearing on H.R. 940, Plastic Pollution Research and Control Act, June 17, 1987. *House Comt. Merchant Marine and Fish. Rept.* 14 pp.
- _____. 1987g. Den selection and use by black bears in Michigan's northern lower peninsula. *Int. Conf. Bear Res. and Manage.* 7:317-322.
- _____. 1987h. Upcoming legislation. *The Entanglement Network Newsletter* 1(1):6.
- _____. 1987i. Legislative update and news briefs. *The Entanglement Network Newsletter* 1(2):5-6.

- _____. 1988a. Tracking plastic in the Pacific. *Defenders* 63(6):10-15.
- _____. 1988b. Committee advises Navy on plastic reduction strategy, federal activity to reduce marine debris, balloon launches threaten wildlife. *The Entanglement Network Newsletter* 2(1):1-2, 4, 5-6.
- _____. 1989a. Oiled aftermath. *Defenders* 64(4):13-17.
- _____. 1989b. The aftermath of North America's largest oil spill; how not to handle the cleanup effort. *Advocate* 7(4):12-13, 24-26.
- _____. 1989c. A funding dilemma: the Fish and Wildlife Conservation Act. *Preserving Communities and Corridors, Defenders of Wildlife*: 63-66.
- _____. 1989d. Vessel-source plastics pollution: what happens now? *Ocean and Coastal Policy Briefing*, 101st Congress, 28 February. *Oceanic Society, Environmental Policy Institute, and Friends of the Earth*:167-172.
- _____. 1989e. Legislative update: what passed the 100th Congress and what's needed for the 101st; an overview. *The Entanglement Network Newsletter* 3(1):4.
- _____. 1990a. A survey of plastics on western Aleutian Island beaches and related wildlife entanglement. Pp. 349-363. *In* R. S. Shomura and M. L. Godfrey (eds.). *Proc. 2nd Inter. Conf. Marine Debris*, Apr. 2-7, 1989, Honolulu, HI. NOAA Tech. Memo. NMFS, NOAA-TM-NMFS-SWFSC-154.
- _____. 1990b. Rearing and management of orphaned black bear cubs (*Ursus americanus*). *Wildl. Rehabilitation* 8:57-63.
- _____. 1990c. The *Exxon Valdez* oil spill: problems with wildlife rehabilitation. *Advocate* 8(1):6-7, 11.
- _____. 1991a. Cleaning up an oil spill: some biological tools in the chest of cleanup options. *J. Clean Technology & Envir. Sci.* 1(2):123-130.
- _____. 1991b. Aleutian Islands plastics, pelagic drift and trawl net problems, and their solutions. *Trans. 56th N. Am. Wildl. & Nat. Resour. Conf.*:205-214.
- _____. 1992a. Maintaining marine biodiversity: the missing link in global ecosystem management. *Trans. 57th N. Am. Wildl. & Nat. Resour. Conf.*:398-407.
- _____. 1992b. Cleaning up an oil spill: biological tools in the chest of clean-up options. Pp. 85-93. *In* V. Molak, W. Davis-Hoover, S. Khan, and M. Mehlman (eds.). *The Alaska Story: a Comprehensive Approach to Problems with Oil Spills in Marine Environments*. Princeton Sci. Publ. Co., Inc., Princeton, NJ.
- _____. 1992c. Variability of dental diseases in two populations of Great Lakes black bears. *Int. Conf. Bear Res. and Manage.* 8:129-134.
- _____. 1994a. Black bears and human ethics: an environmental perspective. *Proc. 12th E. Black Bear*

Workshop, Gatlinburg, TN.

- _____. 1994b. Background and vision. Executive director's page. Adirondac 58(3):46.
- _____. 1994c. Why ADK must continue to grow. Executive director's page. Adirondac 58(4):47.
- _____. 1994d. Putting the fun into fund-raising. Executive director's page. Adirondac 58(5):4-5.
- _____. 1994e. Developments in development. Executive director's page. Adirondac 58(6):4-5.
- _____. 1995a. My first eight months with team ADK. Executive director's page. Adirondac 59(1):4-5.
- _____. 1995b. Strategic planning — ADK's road map into the future. Executive director's page. Adirondac 59(2):4-5.
- _____. 1995c. The importance of conservation. Executive director's page. Adirondac 59(3):4-5.
- _____. 1995d. A vision for the future: ADK then and now. Executive director's page. Adirondac 59(4):4-5.
- _____. 1995e. Eye on Congress; about our staff. Executive director's page. Adirondac 59(5):4-6.
- _____. 1995f. Grin and bear it. Executive director's page. Adirondac 59(6):4-6.
- _____. 1998a. Depredation order issued for killing cormorants in aquaculture. Bird Calls 2(1):12-13.
- _____. 1998b. International body tackles global seabird bycatch. Bird Calls 2(2):9.
- _____. 1998c. Communications towers and bird kills. Bird Calls 2(2):10.
- _____. 1999a. Global seabird accord ratified by UN's FAO. Bird Calls 3(1):2.
- _____. 1999b. Neotropical Migratory Bird Conservation Act progresses. Bird Calls 3(1):3.
- _____. 1999c. Efforts continue to reduce bird kills at towers. Bird Calls 3(1):6.
- _____. 1999d. ① Status report: national plan of action for seabirds, reducing bycatch. ② Migratory Bird Treaty discussions with Japan. ③ Status report: avian mortality at communications towers. ④ Pesticides and migratory birds. Bird Calls 3(2).
- _____. 1999e. Reducing seabird bycatch, conserving birds with Japan, and minimizing bird collisions with towers. Fish & Wildlife Service News.
- _____. 1999f. Avian mortality at communication towers: a fact sheet. *In* Proceedings Conference on Avian Mortality at Communication Towers, August 11, 1999, Cornell Univ., Ithaca, NY. Published on Internet at <<http://migratorybirds.fws.gov/issues/towers/agenda.html>>.
- _____. 2000a. The ABCs of avoiding bird collisions at communication towers: the next steps. Proceedings of Avian Interactions Workshop, Dec. 2, 1999, Charleston, SC. Electric Power Research

Inst. 14 pp at <<http://migratorybirds.fws.gov/issues/towers/abcs.html>>.

- _____. 2000b. U.S. national plan of action for the reduction of incidental catch of seabirds in longline fisheries pp. 14-15 *In* J.W. Chardine, J.M. Porter, and K.D. Wohl (eds.). Conservation of Arctic Flora and Fauna Workshop on Seabird Incidental Catch in the Waters of Arctic Countries, 26-28 April 2000. CAFF Technical Report No. 7, Oct. 2000. 65 pp.
- _____. 2001. Avian mortality at communication towers: steps to alleviate a growing problem (Chapter 4), pp. 75-86, 227-228 *In* B.B. Levitt (ed). Cell Towers, Wireless Convenience? or Environmental Hazard? Proceedings of the “Cell Tower Forum,” State of the Science/State of the Law, December 2, 2000. The Berkshire-Litchfield Environmental Council, ISBN 1-88482062-X, New Century Publishing 2000.
- _____. 2002a. The ABCs of avoiding bird collisions at communication towers: the next steps. Proceedings of Avian Interactions Workshop, Dec. 2, 1999, Charleston, SC, Electric Power Research Inst. 14 pp.
- _____. 2002b. Protocol for monitoring the impacts of cellular telecommunication towers on migratory birds within the Coconino, Prescott, and Kaibab National Forests, Arizona. Peer-reviewed research monitoring protocol requested by and prepared for the U.S. Forest Service. Division of Migratory Bird Management, USFWS, 9 pp. March 2002.
- _____. 2004. Prairie grouse leks and wind turbines: U.S. Fish and Wildlife Service justification for a 5-mile buffer from leks; additional grassland songbird recommendations. Division of Migratory Bird Management, USFWS, Arlington, VA, peer-reviewed briefing paper. 17 pp.
- _____. 2005. Bird strikes and electrocutions at power lines, communication towers, and wind turbines: state of the art and state of the science – next steps toward mitigation. Pages 1051-1064 *In* C.J. Ralph and T.D. Rich (eds), Bird Conservation Implementation in the Americas: Proceedings 3rd International Partners in Flight Conference, U.S.D.A. Forest Service Gen. Technical Report PSW-GTR-191, Albany, CA.
- _____. 2007. Comments of the U.S. Fish and Wildlife Service submitted electronically to the FCC on 47 CFR Parts 1 and 17, WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, “Effects of Communication Towers on Migratory Birds.” February 2, 2007. 32 pp.
- _____. 2009. Towers, turbines, power lines and buildings – steps being taken by the U.S. Fish and Wildlife Service to avoid or minimize take of migratory birds at these structures. Pp 262-272 *In* T.D. Rich, C. Arizmendi, D.W. Demarest, and C. Thompson (eds.). Tundra to Tropics: Connecting Birds, Habitats and People. Proceedings 4th International Partners in Flight Conference, McAllen, Texas.
- _____. 2011. Estimates of annual human-caused mortality to North American birds (with literature citations). Division of Migratory Bird Management, USFWS, for public distribution. 12 pp.

- _____. 2013a. Recommended lighting standards and lighting protocols for structures requiring pilot warning lighting, and for security lighting purposes. Div. Migratory Bird Management, USFWS, Arlington, VA. Peer-reviewed briefing paper. 6 pp.
- _____. 2013b. Anthropogenic-related bird mortality focusing on steps to address human-caused problems. An invited White Paper for the Anthropogenic Panel, 5th International Partners in Flight Conference, August 27, 2013, Snowbird, Utah. 15 pp.
- _____. 2013c. U.S. Fish and Wildlife Service (USFWS) revised guidelines for communication tower design, siting, construction, operation, retrofitting, and decommissioning — Suggestions based on previous USFWS recommendations to FCC regarding WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on Migratory Birds," Docket No. 08-61, FCC's Antenna Structure Registration Program, and Service 2012 Wind Energy Guidelines. Division of Migratory Bird Management, Arlington, VA. 5 pp.
- _____. 2014. Status of U.S. Fish and Wildlife Service developments with communication towers with a focus on migratory birds: updates to Service staff involved with tower issues — a webinar. Talking Points and Literature Citations, Available to the Public. March 7, 13 pp.
- _____. 2015. Recommendations for additional research and funding to assess impacts of non-ionizing radiation to birds and other wildlife. Memorandum to Dr. J. McGlade, Science Advisor to United Nations Environment Program, Key Research Needs Affecting Wildlife Suggesting UNEP's Immediate Attention. March 5, 2 pp.
- _____. 2016a. Chapter 20: Impacts to birds and bats due to collisions and electrocutions from some tall structures in the United States: Wires, towers, turbines, and solar arrays — State of the art in addressing the problems. *In*: F.M. Angelici (ed.), *Problematic Wildlife — a Cross-Disciplinary Approach*. Pp. 415-442. Springer International Publishing, Switzerland. DOI 10:1007/978-3-319-22246-2.
- _____. 2016b. A briefing memo: what we know, can infer, and don't yet know about impacts from thermal and non-thermal non-ionizing radiation to birds and other wildlife — for public release. Peer-reviewed briefing memo, July 14, 2016, 12 pp.
- _____. 2016c. Comments submitted for the Administrative Record Re: National Telecommunications Information Administration's (NTIA) First Responder Network (FirstNet) Draft Programmatic Environmental Impact Statement (DPEIS) for the Western United States. 14 pp., Sept. 29.
- _____. 2018. One small step at Sperry Chalet. *The Inside Trail*: 24.

Examples of **Some Select Multiple-authored titles** include:

Anderson, D., D. Curry, E. DeMeo, S. Enfield, T. Gray, L. Hartman, K. Sinclair, R. Therkelsen, S. Ugoretz, D. Bain, J. Cadogan, B. Fannucchi, T. Gagliano, B. Grant, D. Herrick, A.M. Manville, II, L. Otteni, B. Parsons, H. Rhoads-Weaver, and J.G. White. 2002. Permitting of wind energy facilities. A

Handbook. National Wind Coordinating Committee, Natl. Renewable Energy Lab Subcontract YAM-9-29210-01 and Dept. Energy Contract DE-AC-36-83CH10093. 50 pp.

Avian Power Line Interaction Committee. 2006. Suggested practices for avian protection on power lines: the state of the art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, DC, and Sacramento, CA. 207 pp.

Avian Power Line Interaction Committee. 2012. Reducing avian collisions with power lines: the state of the art in 2012. Edison Electric Institute and APLIC, Washington, DC. 159 pp.

Barlow, J. R., W. Baird, J. E. Heyning, K. Wynne, A. M. Manville II, L. F. Lowry, D. Hanan, J. Sease, and V. N. Burkanov. 1992. A review of cetacean and pinniped mortality in coastal fisheries along the West Coast of the USSR. NMFS, NOAA Spec. Pub., Proc. Int. Conf. Mortality to Cetaceans in Passive Fishing Gear and Traps, Oct. 22-25, 1990. La Jolla, CA. 53 pp.

Evans, W.R., and A.M. Manville, II (eds.). 2000. Avian mortality at communication towers. Transcripts of Proceedings of Workshop on Avian Mortality at Communication Towers, August 11, 1999, Cornell University, Ithaca, NY. Published on Internet at <<http://migratorybirds.fws.gov/issues/towers/agenda.html>>.

Evans, W.R., Y. Akashi, N.S. Atman, and A.M. Manville, II. 2007. Response to night-migrating songbirds in cloud to colored and flashing light. *North American Birds* 60 (4):476-488.

Fitzgerald, J. M., G. M. Meese, H. Fischer, S. Hagood, A. S. Johnson, A. M. Manville II, D. Randall, R. Spotts, K. R. Tollerton, and S. Vickerman. 1987. Saving endangered species: implementation of the Endangered Species Act. Defenders of Wildlife, Washington, DC. 28 pp.

Floyd, T., A. M. Manville, II, and S. P. French. 1990. Normal oral flora in black bears: guidelines for antimicrobial prophylaxis following bear attacks. *J. Wilderness Medicine* 1:47-49.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2009. Communication towers, lights and birds: successful methods of reducing the frequency of avian collisions. *Ecological Applications* 19(2): 505-514.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2011. The role of tower height and guy wires on avian collisions with communication towers. *Journal of Wildlife Management* 75(4): 848-855.

Longcore, T., C. Rich, P. Mineau, B. MacDonald, D.G. Bert, L.M. Sullivan, E. Mutrie, S.A. Gauthreaux, Jr., M.L. Avery, R.C. Crawford, A.M. Manville, II, E.R. Travis, and D. Drake. 2012. An estimate of avian mortality at communication towers in the United States and Canada. *PLoS ONE* 7(4) 17 pp, Open Access.

Longcore, T., C. Rich, P. Mineau, B. MacDonald, D.G. Bert, L.M. Sullivan, E. Mutrie, S.A. Gauthreaux, Jr., M.L. Avery, R.C. Crawford, A.M. Manville, II, E.R. Travis, and D. Drake. 2013. Avian mortality at communication towers in the United States and Canada: which species, how many, and where? *Biological Conservation* 158: 410-419.

Morris, K., T. Eagle, B. Zytaruk, and A. Manville. 1978. A case for standardizing the interpretation of tooth sections for aging black bears. Pp. 354-364. *In* R. Hugie (ed.). Proc. 4th E. Black Bear Workshop, Greenville, ME. 409 pp.

Tipton, A. R., F. Alt, G. Alt, W. Brown, D. Garshelis, R. Hamilton, A. M. Manville, J. McDaniel, G. Matula, and J. O'Pezio. 1978. The role of radio-telemetry in black bears -- management and research. Pp. 322-337. *In* R. Hugie (ed.). Proc. 4th E. Black Bear Workshop, Greenville, ME. 409 pp.

ARTICLES AND PUBLICATIONS ABOUT MANVILLE'S PAST WORK

- Williamson, L. 1988. Taking aim: throwing it all away. *Outdoor Life* (Aug.):32-34. (about problems with marine debris entanglement to fish and wildlife).
- Boiarsky, C. R. 1993. Technical writing: contexts, audiences, and communities. Allyn and Bacon, Boston. Relating claims to readers and their communities (Alaska's aerial wolf control program), relating evidence to readers and their communities (Alaska wolf), and organizing to follow a logical line of reasoning (Alaska wolf), pp. 210-218, 221-225. Oral presentations (*Exxon Valdez* oil spill), pp. 606-608.
- Brown, E. 1994. Al Manville, ADK's new executive director. *Adirondac* 58(3):11.
- Beggs, L. 1994. Albert Manville '69: new leader of the Adirondack Mountain Club. *Allegheny* 14(3):46.

PROFESSIONAL MEMBERSHIPS CURRENT AND PAST

- Aircraft Owners and Pilots Association
- Air Safety Foundation
- Alaska Wildlife Alliance
- Alpha Zeta Honorary Fraternity
- American Society of Mammalogists, life member
- American Society of Media Photographers
- Big Life Foundation
- Boone and Crockett Club Official Measurer
- Conservation International
- Environmental Air Force
- Metropolitan Washington Environmental Professionals
- Natural Resources Council of Maine
- Natural Resources Defense Council
- The Ecological Society of America
- The Wilderness Society
- The Wildlife and Forestry Professional Information Exchange
- The Wildlife Society, long-term member
- Washington Biologists' Field Club

MAJOR SCIENTIFIC ACCOMPLISHMENTS

- Conducted 6 summers of research (1988-1993) on marine debris, wildlife entanglement, seabird bycatch, and declining populations of Steller's sea lions and harbor seals in the Aleutian Islands, AK. Published 8 scientific articles about the research findings and invited to share them at several Congressional Committee hearings.
- Invited to serve as a panelist on a Canadian workshop on plastics (1989).
- Invited to brief the Hawaiian State Senate on marine conservation and marine plastic issues

(1989).

- Served as committee member on an International Whaling Commission (IWC) panel on cetacean mortality from passive fishing gear, co-authored IWC publication dealing with North Pacific fishing gear problems (1990).
- Served as member U.S. Scientific Delegation (representing the environmental community) reviewing the science dealing with high-seas driftnetting, negotiating with the Japanese, Taiwanese, South Koreans and Canadians on scientific high-seas driftnetting issues. Appointed rapporteur of Marine Mammal Working Group. Helped prepare final report for submission to the Department of State and to the President (1991).
- Conducted over 5 years of on-scene habitat and wildlife assessments following the *Exxon Valdez* oil spill (1989-1994, 1996). Conducted “bucket tests” of environmentally benign cleanup technologies, attempting unsuccessfully to get Exxon, the Coast Guard, the Environmental Protection Agency, the AK Dept. of Environmental Conservation, and others to use them to clean up the spill. Garnered media coverage on the Persian Gulf oil spill resulting in successful use of several environmentally benign cleanup technologies which Exxon refused to use in Alaska.
- Invited by National Academy of Science’s National Research Council to be 1 of only 2 environmentalists to participate in a meeting concerning oil spill research and development, a report submitted to Congress (1991).
- Invited by National Academy of Science’s Marine Board to review the effectiveness of MARPOL Annex V Protocol and implementing domestic legislation, especially that related to plastics dumping (1992).
- Invited by Walt Disney Productions/Touchstone Pictures to serve as the wildlife consultant for the filming of Jack London’s *White Fang* (1989-1991), with credits to Defenders of Wildlife, movie released in 1991.
- Invited to brief the Strategic [Alaska] Wolf Management Team on statewide wolf management, with a number of the recommendations later adopted by the Team and presented to AK Governor Walter Hickel (1991). Invited by Gov. Hickel to present the national environmental perspective on wolf management to an audience of some 1,500 participants at the Alaska Wolf Summit, Fairbanks (1993).
- Worked with key players dealing with recovery of the threatened Louisiana black bear, garnering an invitation for Defenders of Wildlife to join the [Louisiana] Black Bear Conservation Committee. Worked with the BBCC to help designate critical habitat for the bear, helped develop an updated recovery plan, and produced a landowner’s guide (1990-1994).
- Conducted research for parts of 5 summers (1990-1993, 1995) culminating in recommendations to the National Park Service on management of humans and brown bears in the Brooks River watershed, Katmai National Park, Alaska, resulting in the implementation of a viewing platform reservation system, camping restrictions within 5 miles of Brooks Falls, development of a lottery camping permit system, and initiation of day-use limitations.
- Invited by the Keystone Center to represent Defenders of Wildlife at a North American regional conference on biodiversity (1991), serving on the Marine Working Group, the report submitted to the Rio Climate Change Conference.
- Helped convince Canada’s Prime Minister, and Ministers of Agriculture and Environment using recommendations based on sound science to end a proposed cull hunt of some 4,200 bison in Wood Buffalo National Park, Alberta, based on an alleged problem of bovine brucellosis and bovine tuberculosis (1990).
- Invited to serve as a member of the coordinating committee, as well as a speaker, panelist, rapporteur, and North American environmental representative to the GLOBE ’92 Food, Agriculture,

and Fisheries Stream, Vancouver, BC (1992).

- Successfully negotiated the unanimous acceptance of the International Plan of Action for Seabirds at UN's FAO Consultation, Plan designed to reduce the bycatch of 61 species of seabirds by at least 80% annually in world's longline fisheries fleets. Invited to serve on 5-member U.S. FAO Steering Committee, head U.S. Seabird Delegation on the U.S. Delegation to the FAO, and serve as Chair of the Interagency Seabird Working Group developing the U.S.'s National Plan of Action for Seabirds, to be ready for implementation by 2001 (1998-1999).
- Successfully negotiated meeting of Japan-U.S. Migratory Bird Treaty in Tokyo. Invited to serve as head of U.S. Delegation, results included agreement on U.S. membership on Anatidae Network and Shorebird Reserve Network Working Groups, joint collaboration on Shorebird Sister Schools Program, joint Dunlin research, collaborative work on endangered Short-tailed Albatross conservation, and agreement on next meeting (1999).
- Succeeded in getting key ornithologists, Federal agency, industry, and NGO representatives to come to the table to address avian mortality at communication towers, focusing on research needs. Helped convince members of Communication Tower Working Group to approve framework for nationwide research monitoring protocol, convinced several communication industry reps. to help fund the research (1999-2005).
- As Project Officer, helped direct avian-communication tower study in MI (2003-2005), served as Project Officer for U.S. Coast Guard funded tall tower study (2006 to 2014), both studies having international ramifications, garnering definitive research results regarding steady-burning red lights, guy support wires and tower height. Published results in *Ecological Applications* and *The Journal of Wildlife Management*. Helped convince the Federal Aviation Administration to change out lighting (2006- 2012), and helped convince the Federal Communications Commission to begin addressing their legal docket, *impacts of communication towers on migratory birds*, through interim rulemaking (2003 to 2014 when I retired from USFWS).

KEY FUNDRAISING ACCOMPLISHMENTS

- Acquired the majority of funding for my Ph.D. black bear radio telemetry research project from the Boone & Crockett Club, Safari Club Internatl., Shikar-Safari Club, and Wildl. Mgt. Inst.
- Garnered significant portions of the funding for programs I coordinated at Defenders of Wildlife.
- Developed a Corporate Council of luminaries and fundraisers at the Adirondack Mt. Club, acquiring among others a \$50K grant from Dr. Fred Seitz (former President, Rockefeller Univ. and former President, National Academy of Sciences). Increased annual funding for ADK by more than \$500K/yr., and received significant in-kind and equipment donations for ADK.

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